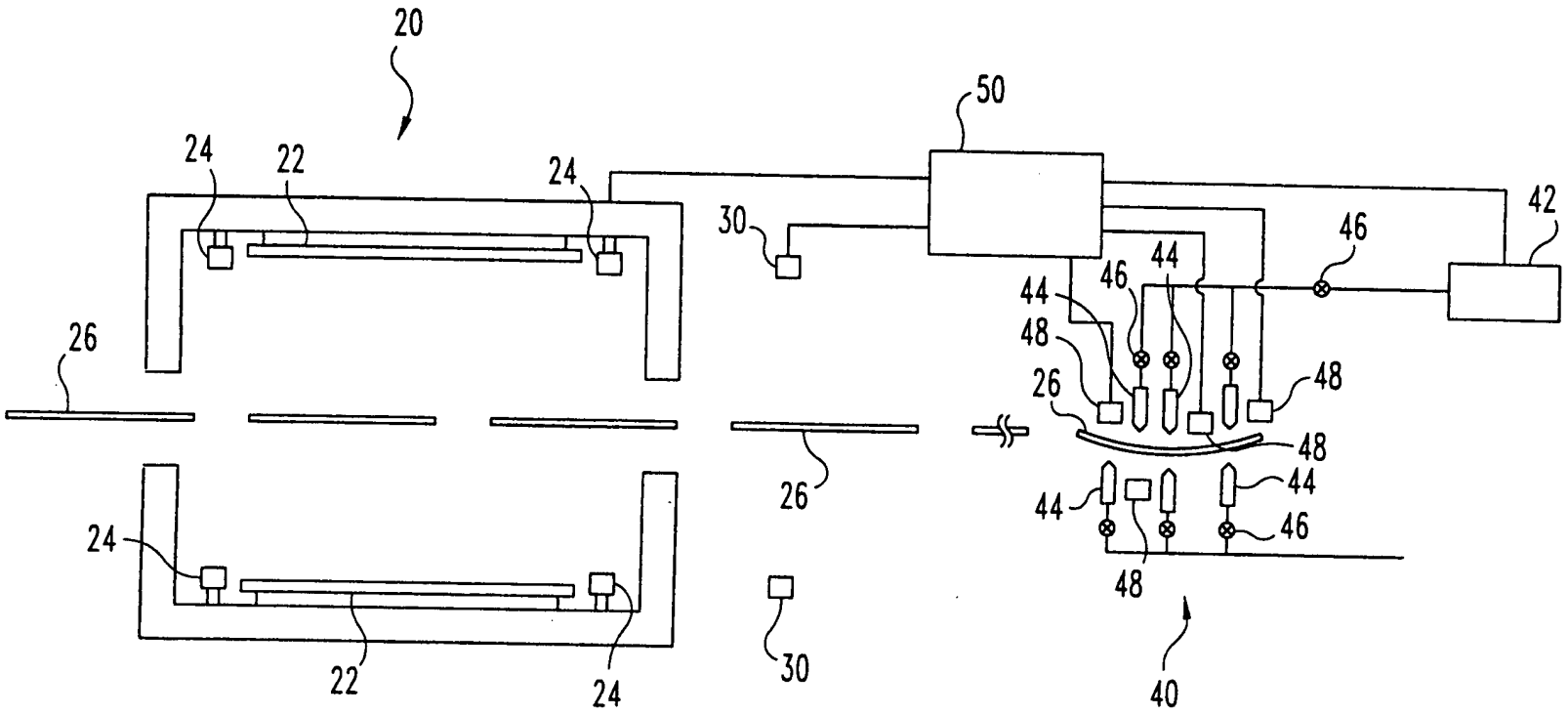

Fig. 1

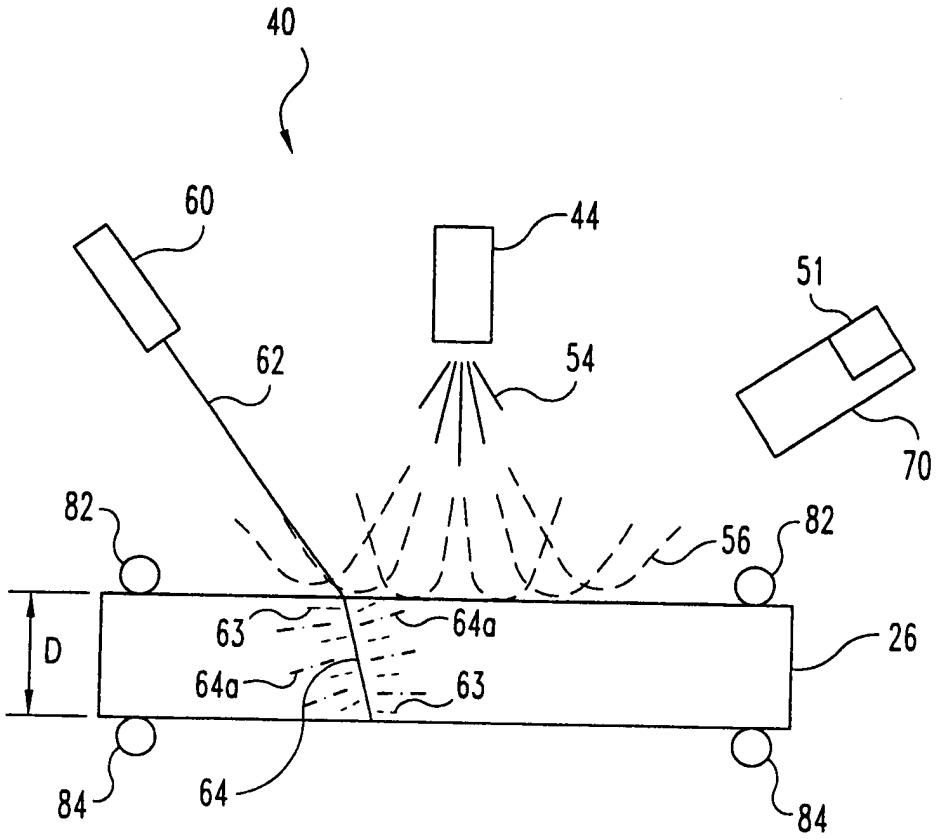

Fig. 2

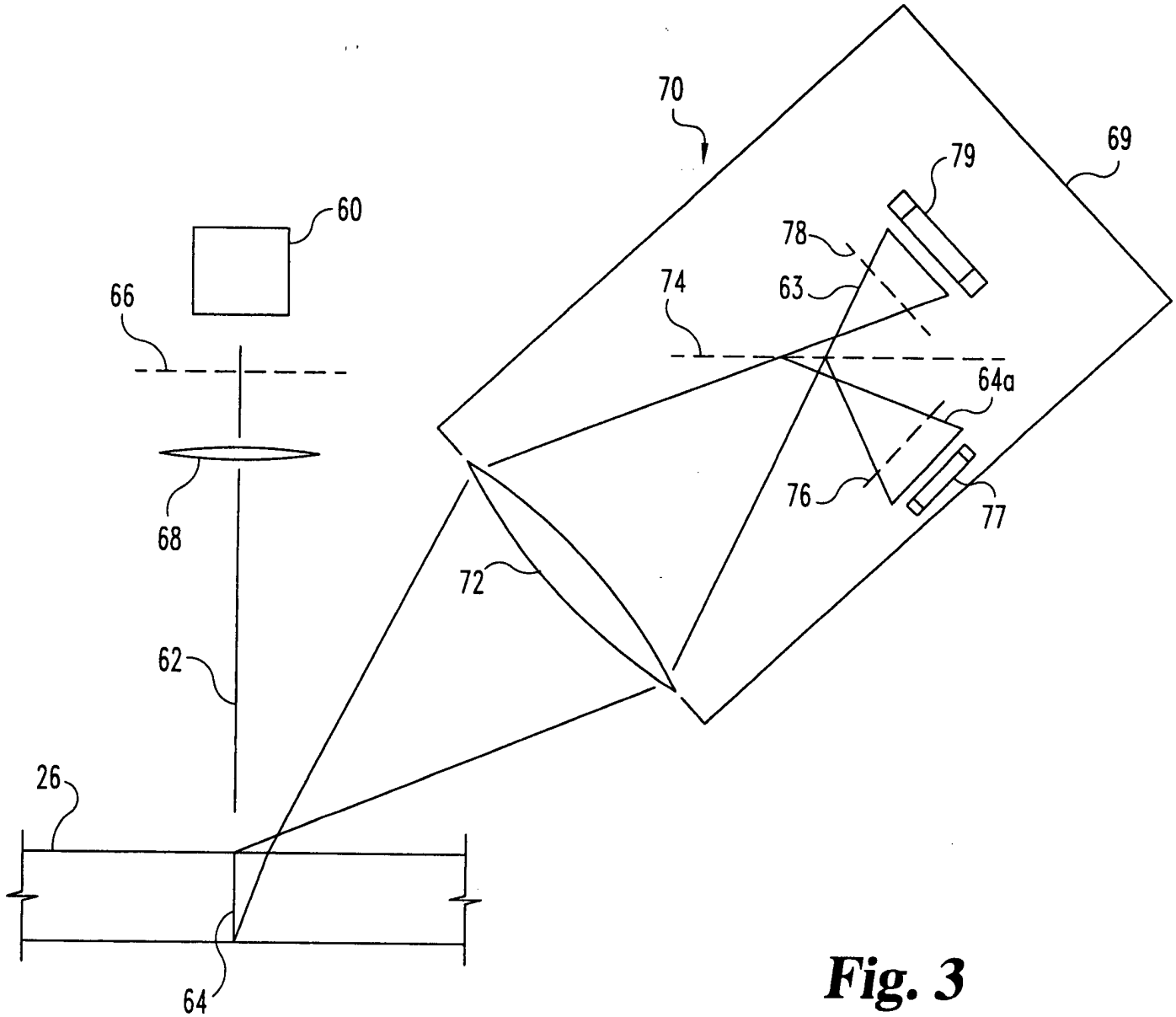

Fig. 3

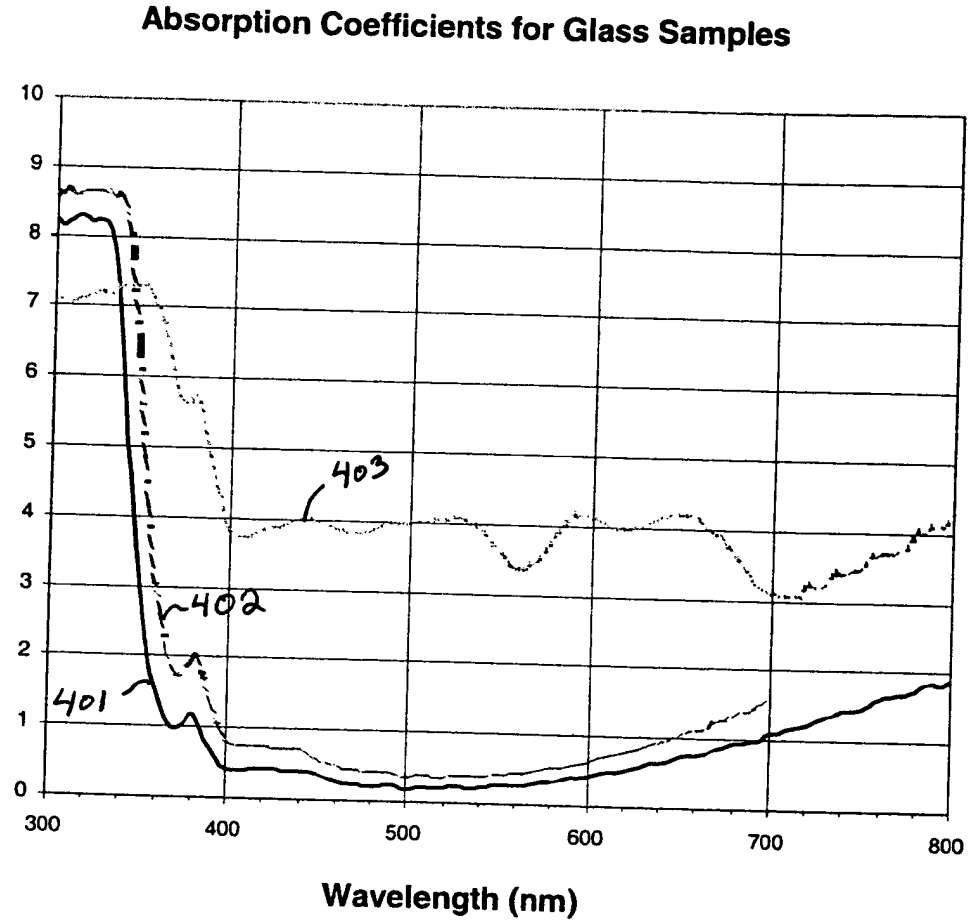
Absorption Coefficients for Glass Samples
Absorption Coefficient (1/cm)
10
9
8
7
6
5
4
3
2
1
0
300
400
500
600
700
800
Wavelength (nm)
401
402
403

FIG. 4

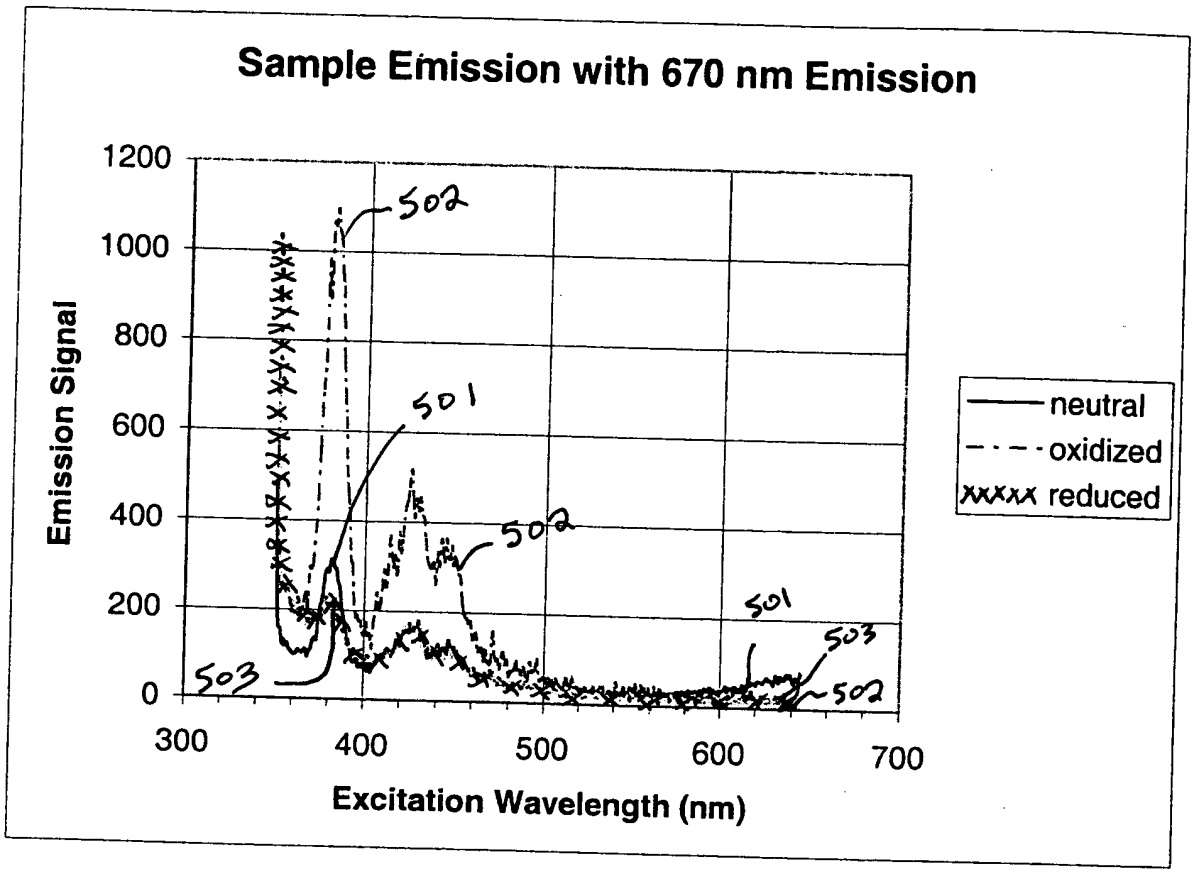
Sample Emission with 670 nm Emission
Emission Signal
1200
1000
800
600
400
200
0
300
400
500
600
700
Excitation Wavelength (nm)
neutral
oxidized
reduced
502
501
502
501
503
503
502

FIG. 5

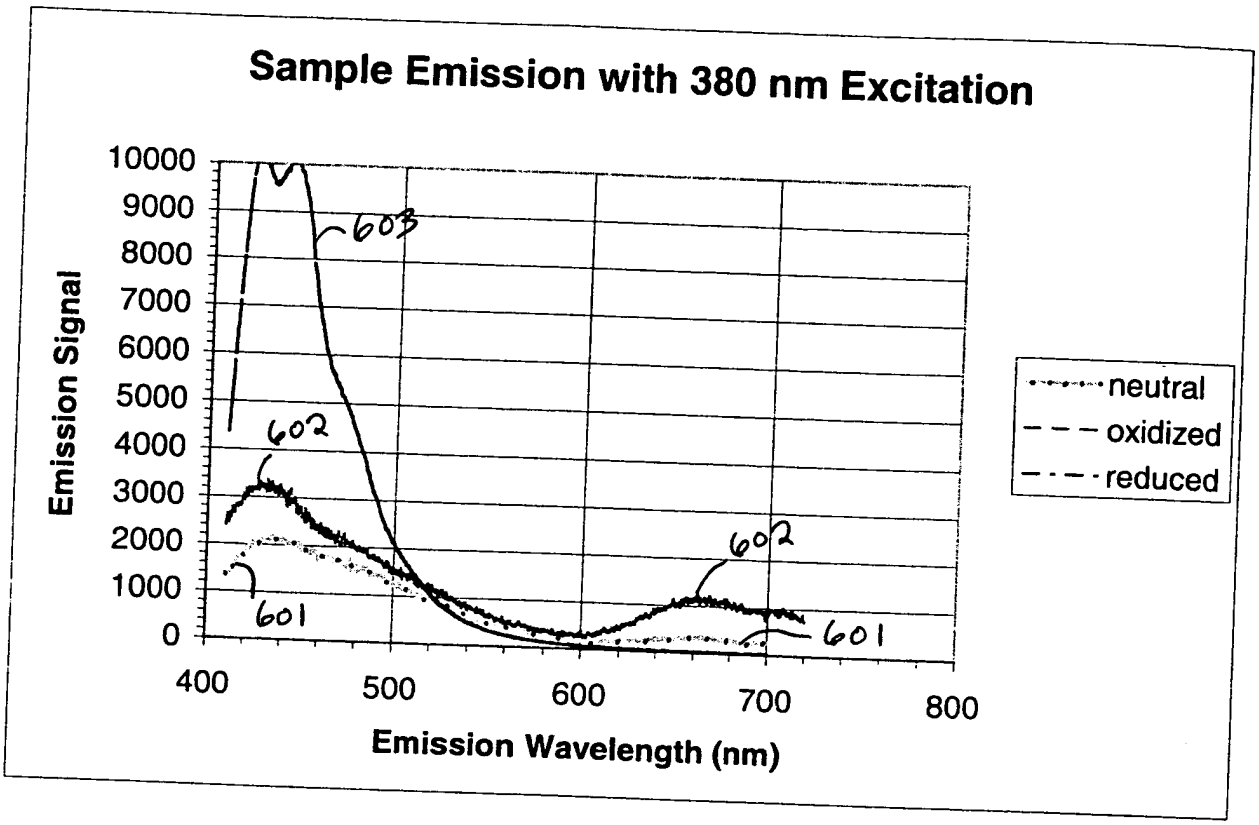
Sample Emission with 380 nm Excitation
Emission Signal
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
400
500
600
700
800
Emission Wavelength (nm)
603
602
601
602
601
neutral
oxidized
reduced

FIG. 6

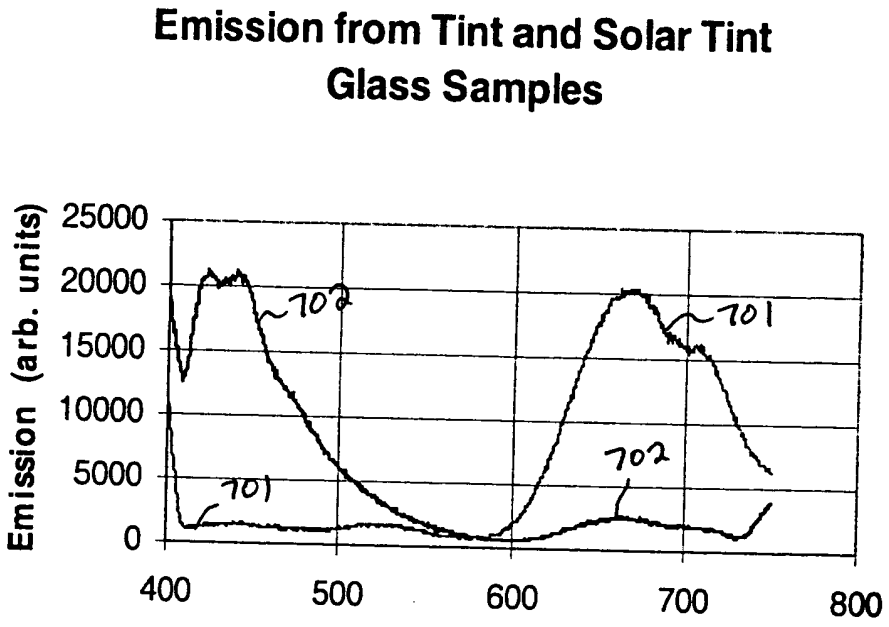
Emission from Tint and Solar Tint Glass Samples
Emission (arb. units)
25000
20000
15000
10000
5000
0
400
500
600
700
800
702
701
701
702

FIG. 7

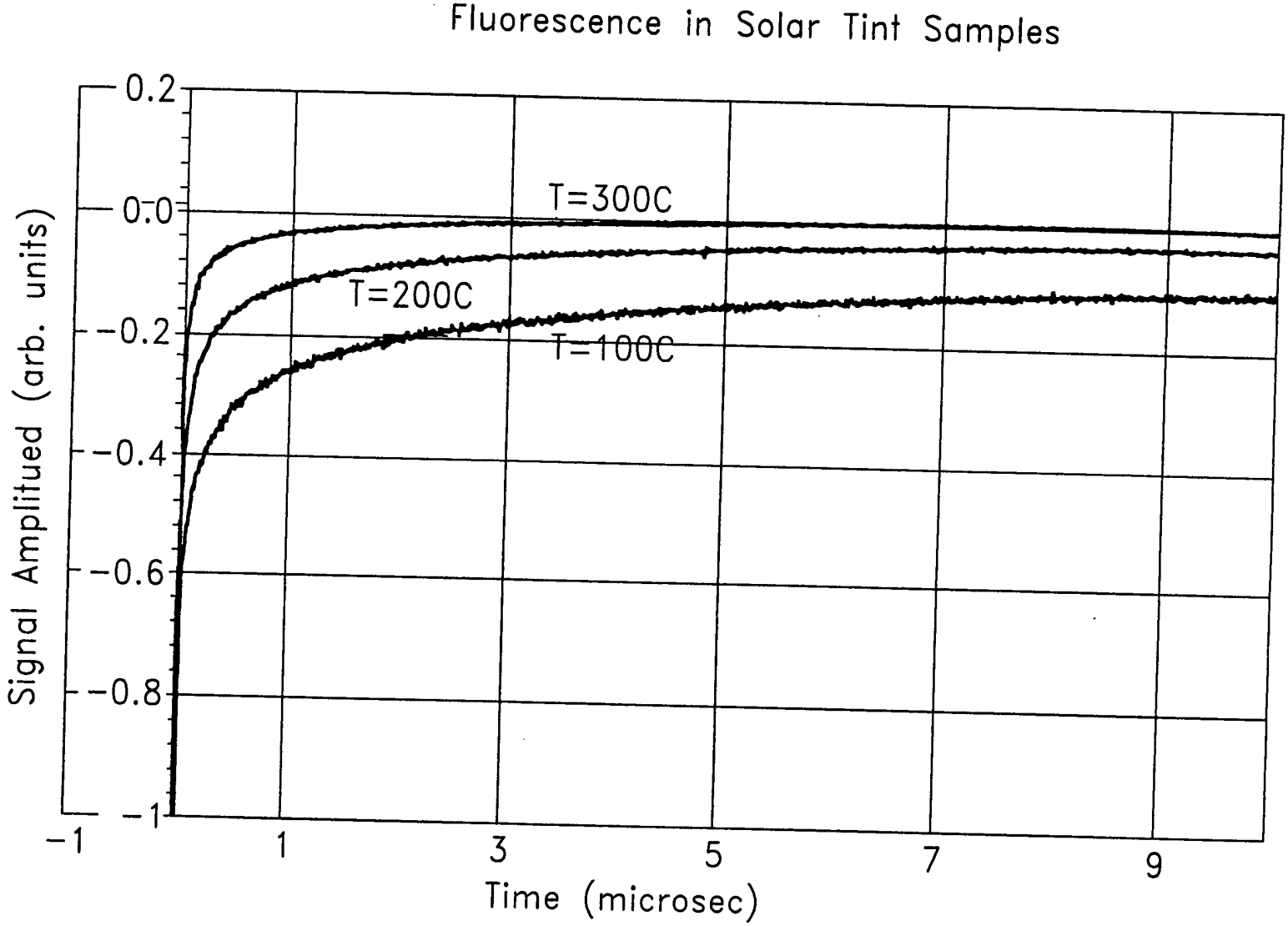
Fluorescence in Solar Tint Samples
Signal Amplitued (arb. units)
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1
T=300C
T=200C
T=100C
-1
1
3
5
7
9
Time (microsec)

Fig. 8

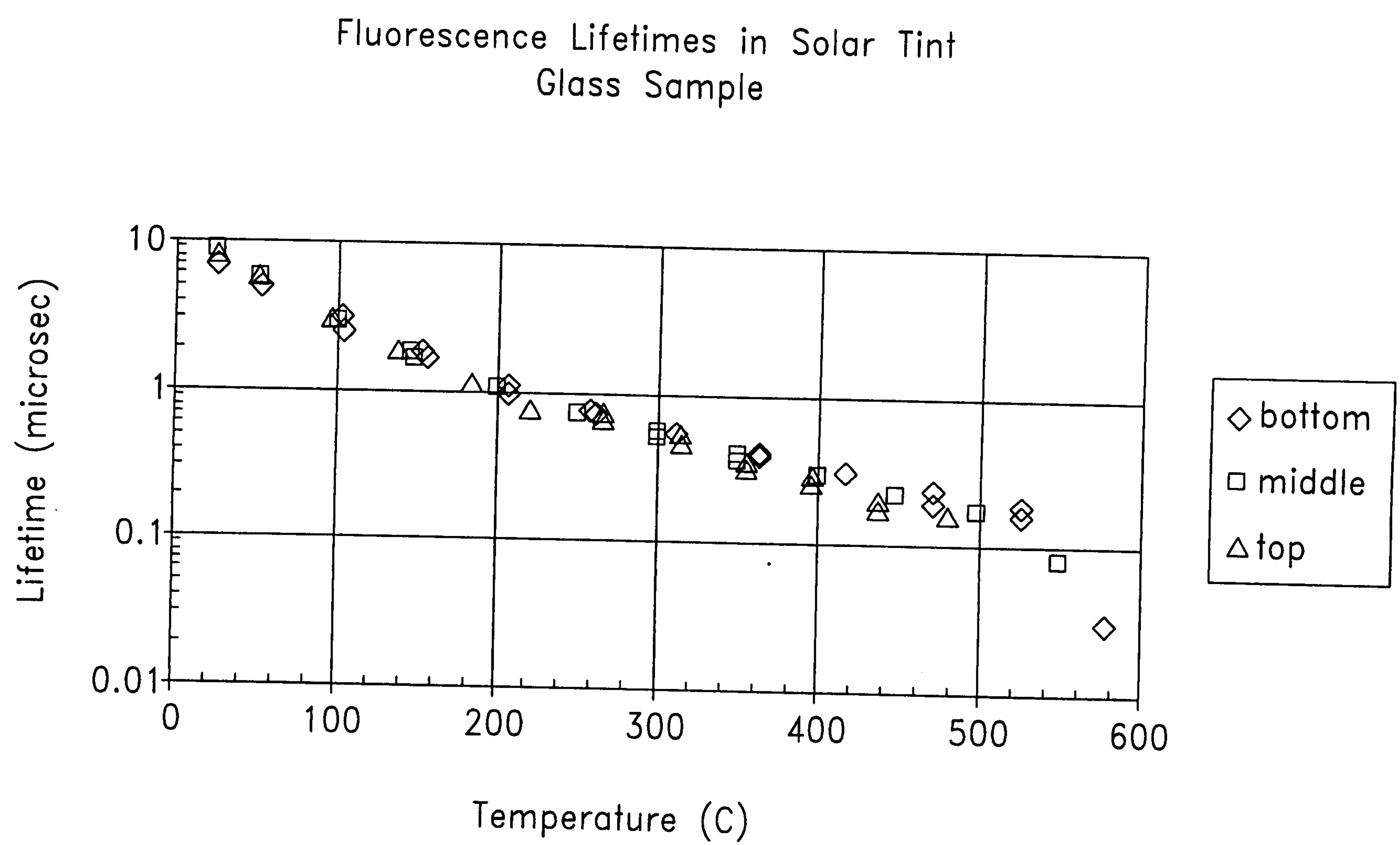
Fluorescence Lifetimes in Solar Tint
Glass Sample
Lifetime (microsec)
10
1
0.1
0.01
0
100
200
300
400
500
600
Temperature (C)
◇ bottom
□ middle
△ top

Fig. 9

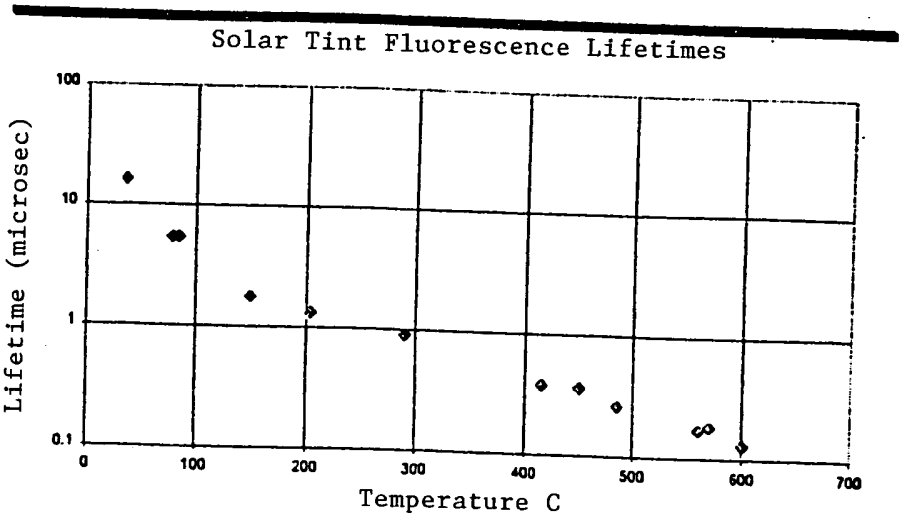
Solar Tint Fluorescence Lifetimes
Lifetime (microsec)
100
10
1
0.1
0
100
200
300
400
500
600
700
Temperature C

FIG. 9B

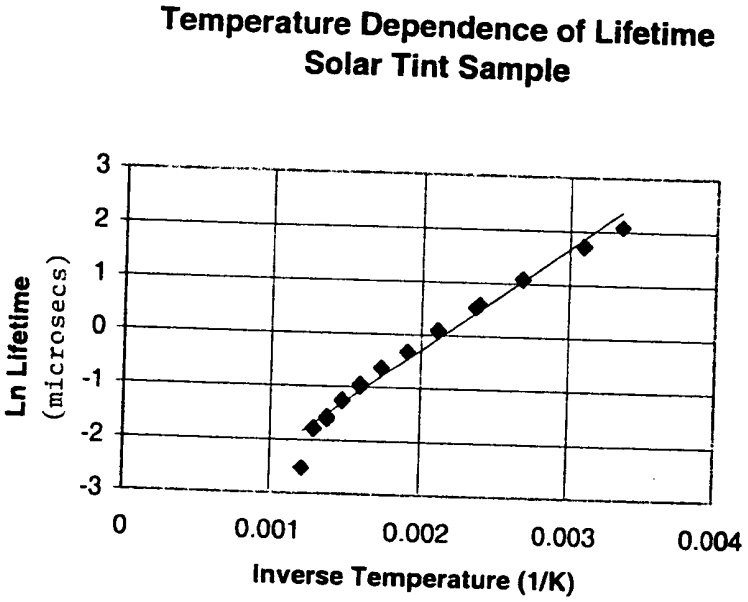
Temperature Dependence of Lifetime
Solar Tint Sample
Ln Lifetime
(microsecs)
3
2
1
0
-1
-2
-3
0
0.001
0.002
0.003
0.004
Inverse Temperature (1/K)

FIG. 10

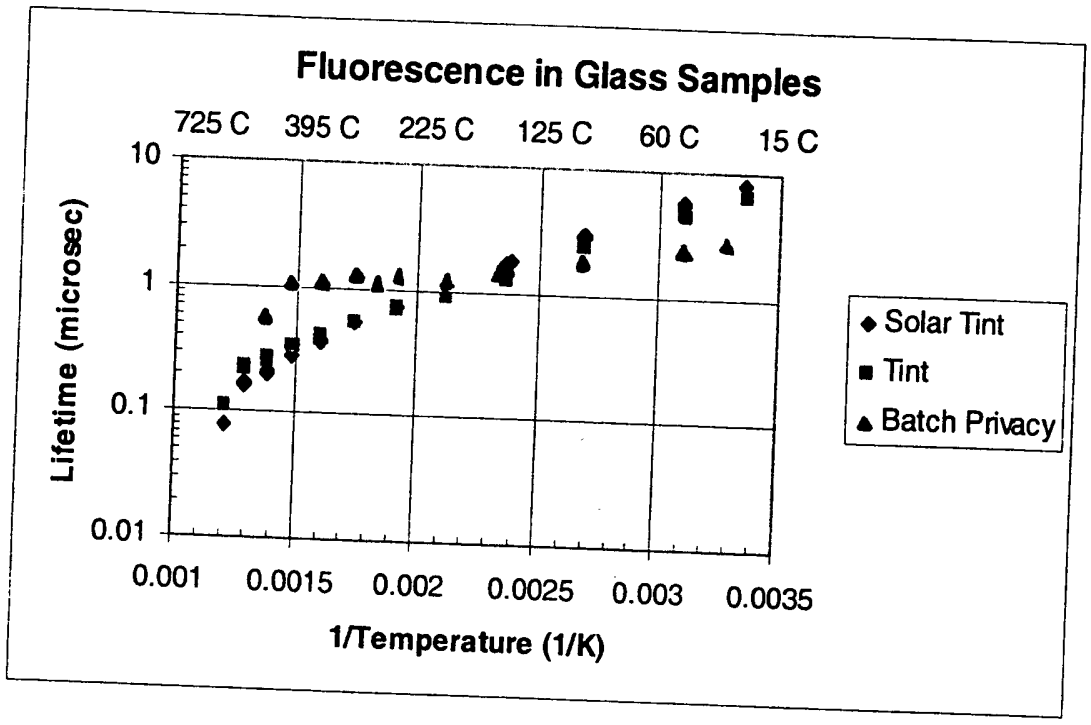
Fluorescence in Glass Samples
725 C
395 C
225 C
125 C
60 C
15 C
10
1
0.1
0.01
Lifetime (microsec)
0.001
0.0015
0.002
0.0025
0.003
0.0035
1/Temperature (1/K)
Solar Tint
Tint
Batch Privacy

FIG. 11

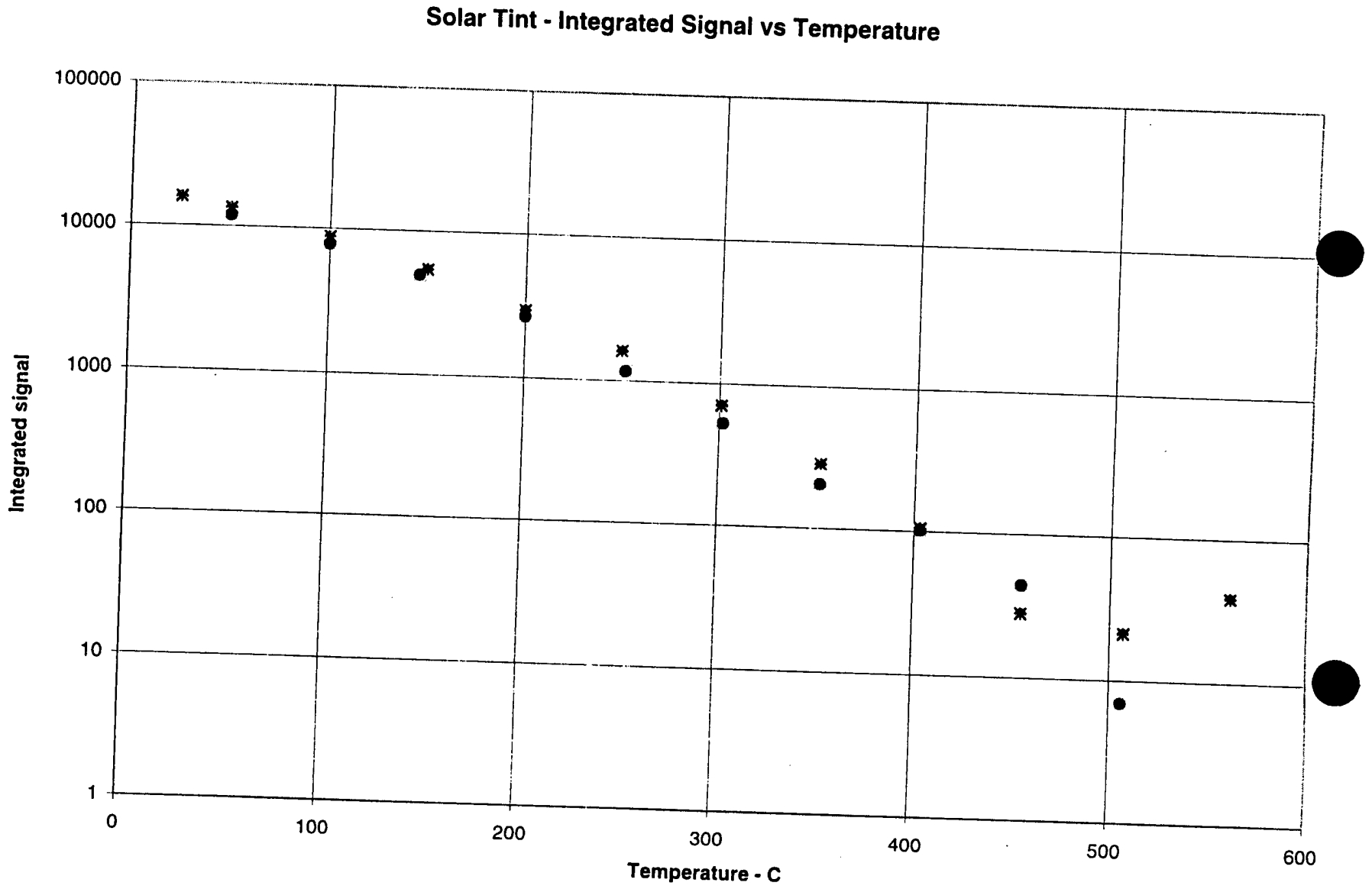

FIG. 12

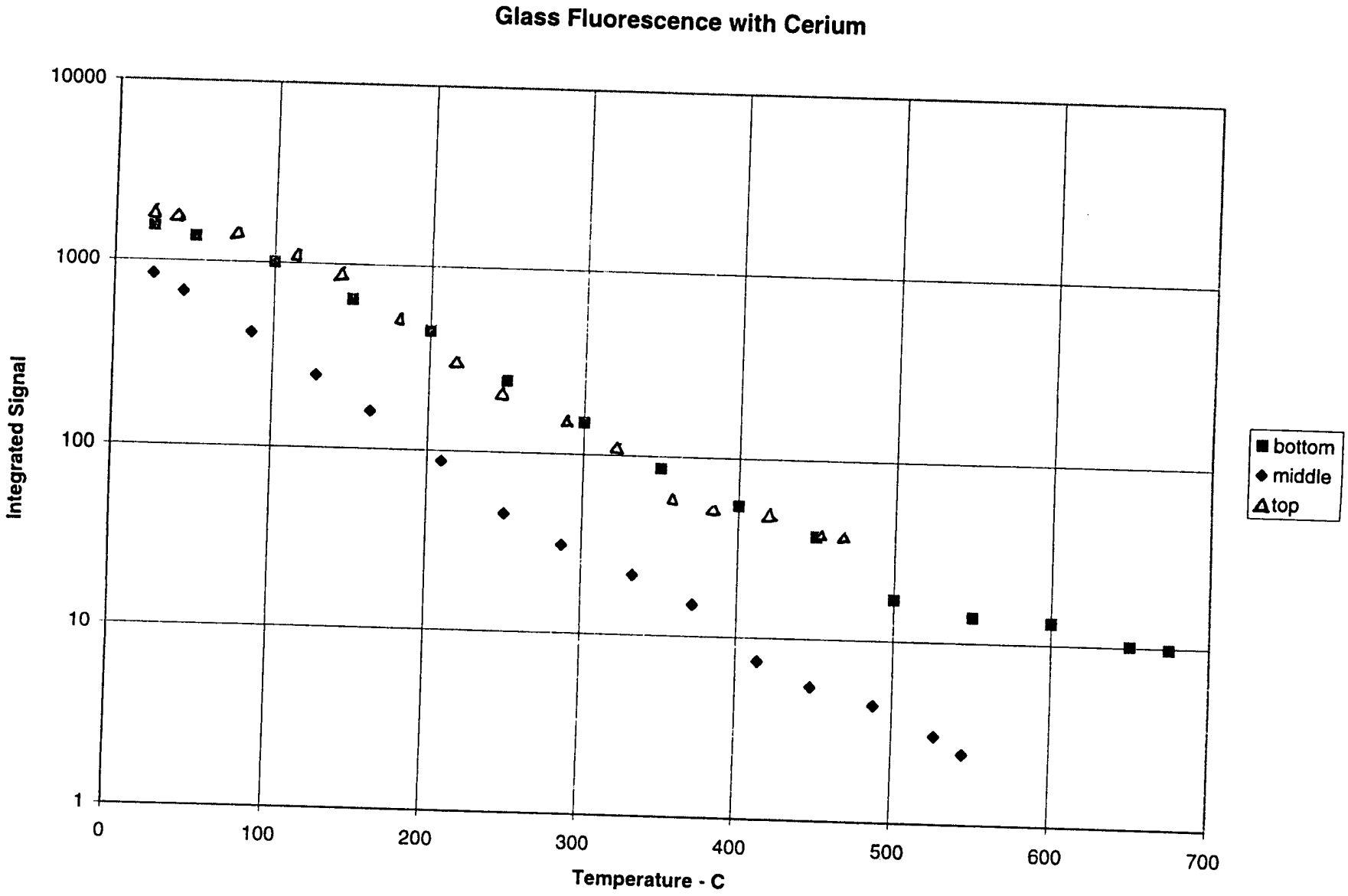

FIG. 13